Newland
Newland Taiwan Inc.

NLS-FR20 Series

Fixed Mount Barcode Scanner

User Guide

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Table of Contents

Chapter 1 Standard Configuration **1**

Chapter 2 Optional Configuration **2**

Chapter 3 Safety Information **3**

Precautions 3

Maintenance 3

Chapter 4 Product Features **4**

Chapter 5 Technical Specifications **5**

Chapter 6 FR20 Scanner **6**

Chapter 7 Wiring **7**

Chapter 8 Scanning Instructions **9**

Reading a Digital Barcode off Mobile Phone 9

Reading a Barcode Printed on Paper 9

Chapter 9 System Settings **10**

Illumination 10

Notification 11

Mute Mode 11

Good Read Beep 11

Good Read Beep Frequency/Duration 12

Scan Mode 13

Sense Mode 13

Continuous Mode 15

Factory Defaults 17

Digit Barcodes 18

Save/Cancel Barcodes 20

Chapter 10 RS-232 Interface **21**

Chapter 11 USB Interface **22**

HID-POS 22

USB COM Port Emulation 22

USB HID-KBW 22
Standard Keyboard 23
Function Key Mapping 23
Emulate ALT+Keypad 25
USB Country Keyboard Types 26

Chapter 12 Symbologies 29

Introduction 29
Global Settings 29
Disable All Symbologies 29
Enable All Symbologies 29
Enable 1D Symbologies 30
Disable 1D Symbologies 30
Enable 2D Symbologies 30
Disable 2D Symbologies 30
Code 128 31
Restore Factory Defaults 31
Enable/Disable Code 128 31
UCC/EAN-128 (GS1-128) 32
Restore Factory Defaults 32
Enable/Disable UCC/EAN-128 32
AIM 128 33
Restore Factory Defaults 33
Enable/Disable AIM 128 33
EAN-8 34
Restore Factory Defaults 34
Enable/Disable EAN-8 34
Transmit Check Digit 34
2-Digit Add-On Code 35
5-Digit Add-On Code 35
EAN-8 Extension 36
EAN-13 37
Restore Factory Defaults 37
Enable/Disable EAN-13 37
Transmit Check Digit 37
2-Digit Add-On Code 38
5-Digit Add-On Code 38

ISSN 39
Restore Factory Defaults 39
Enable/Disable ISSN 39
ISBN 40
Restore Factory Defaults 40
Enable/Disable ISBN 40
Set ISBN Format 40
UPC-E 41
Restore Factory Defaults 41
Enable/Disable UPC-E 41
Transmit Check Digit 41
2-Digit Add-On Code 42
5-Digit Add-On Code 42
Transmit System Character 43
UPC-E Extension 43
UPC-A 44
Restore Factory Defaults 44
Enable/Disable UPC-A 44
Transmit Check Digit 44
2-Digit Add-On Code 45
5-Digit Add-On Code 45
Transmit Preamble Character 46
Interleaved 2 of 5 47
Restore Factory Defaults 47
Enable/Disable Interleaved 2 of 5 47
Check Digit Verification 48
ITF-6 49
Restore Factory Defaults 49
Enable/Disable ITF-6 49
ITF-14 50
Restore Factory Defaults 50
Enable/Disable ITF-14 50
Matrix 2 of 5 (European Matrix 2 of 5) 51
Restore Factory Defaults 51
Enable/Disable Matrix 2 of 5 51
Check Digit Verification 52
Industrial 25 53

Restore Factory Defaults 53
Enable/Disable Industrial 25 53
Check Digit Verification 54
Standard 25 55
Restore Factory Defaults 55
Enable/Disable Standard 25 55
Check Digit Verification 56
Code 39 57
Restore Factory Defaults 57
Enable/Disable Code 39 57
Transmit Start/Stop Character 57
Enable/Disable Code 39 Full ASCII 58
Check Digit Verification 59
Codabar 60
Restore Factory Defaults 60
Enable/Disable Codabar 60
Check Digit Verification 61
Transmit Start/Stop Character 62
Code 93 63
Restore Factory Defaults 63
Enable/Disable Code 93 63
Check Digit Verification 64
Code 11 65
Restore Factory Defaults 65
Enable/Disable Code 11 65
Check Digit Verification 66
Plessey 67
Restore Factory Defaults 67
Enable/Disable Plessey 67
Check Digit Verification 68
MSI-Plessey 69
Restore Factory Defaults 69
Enable/Disable MSI-Plessey 69
Check Digit Verification 70
RSS-14 71
Restore Factory Defaults 71
Enable/Disable RSS-14 71

Transmit Application Identifier “01” 71
RSS-Limited 72
Restore Factory Defaults 72
Enable/Disable RSS- Limited 72
Transmit Application Identifier “01” 72
RSS-Expand 73
Restore Factory Defaults 73
Enable/Disable RSS-Expand 73
PDF417 74
Restore Factory Defaults 74
Enable/Disable PDF417 74
Macro PDF417 74
Data Matrix 75
Restore Factory Defaults 75
Enable/Disable Data Matrix 75
Enable/Disable Mirrored DM 75
Rectangular Barcodes 76
QR Code 77
Restore Factory Defaults 77
Enable/Disable QR Code 77
Micro QR 77

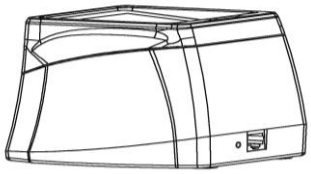
Chapter 13 Data Formatting 78

AIM ID Prefix 78
CODE ID Prefix 82
Terminating Character Suffix 84

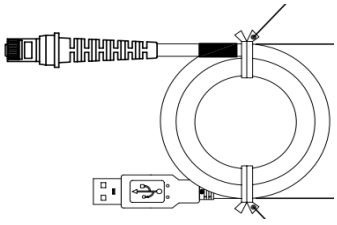
Chapter 14 Troubleshooting 85

Chapter 1 Standard Configuration

1. NLS-FR20 Series fixed mount barcode scanner



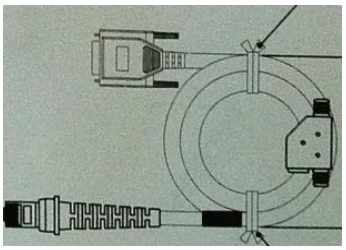
2. USB cable



3. Quick Start Guide

Chapter 2 Optional Configuration

1. RS-232 cable



2. 5V power adapter

You should retain proof of purchase and ask your dealer for a warranty card.

Note: You should check to make sure that everything on the standard configuration list is present and intact after opening the package. If any contents are damaged or missing, please keep the original package and contact your dealer immediately for after-sale service.

Chapter 3 Safety Information

Precautions

■ Disassembly and retrofit ● Do not disassemble or retrofit the device yourself. Artificial damages caused by failure to observe this precaution are not covered by the warranty.
■ External power supply ● Use only the supplied power adapter. Otherwise there is a risk of damage to the scanner.
■ Abnormal situation ● Keep the scanner away from fire or heat sources. If there is unusual odor, overheating or smoke, immediately cut off the power and disconnect the power adapter, and contact your dealer or Newland customer service center. Continued use in this case may result in fire or electric shock.
■ Drop damage ● If the scanner is damaged due to a drop from high place, immediately cut off the power and contact your dealer or Newland customer service center.
■ Mounting location ● Do not place the scanner on unstable or uneven surfaces. ● Do not expose the scanner to humidity, dust or direct sunlight.

Maintenance

● The scan window should be kept clean using soft cloth or lens cleaning tissue. Do not use detergent to clean it.
● Do not scratch the scan window.
● Sudden temperature drops may cause condensation on the shell which could degrade the performance of the device. If condensation occurs, dry the device before use.

Chapter 4 Product Features

Designed primarily for such applications as electronic tickets/coupons, mobile marketing and office automation, the NLS-FR20 series fixed mount barcode scanner is able to read barcodes from paper and mobile phones.

It boasts the following features:

1. Digital barcode data capture

Capable of reading 1D and 2D barcodes off mobile phones.

2. Printed barcode data capture

Capable of reading 1D and 2D barcodes printed on paper.

3. Swift scanning

Delivers effortless, snappy and accurate reading of barcodes on various mobile phone LCD screens with different contrast ratios, colors and reflectances.

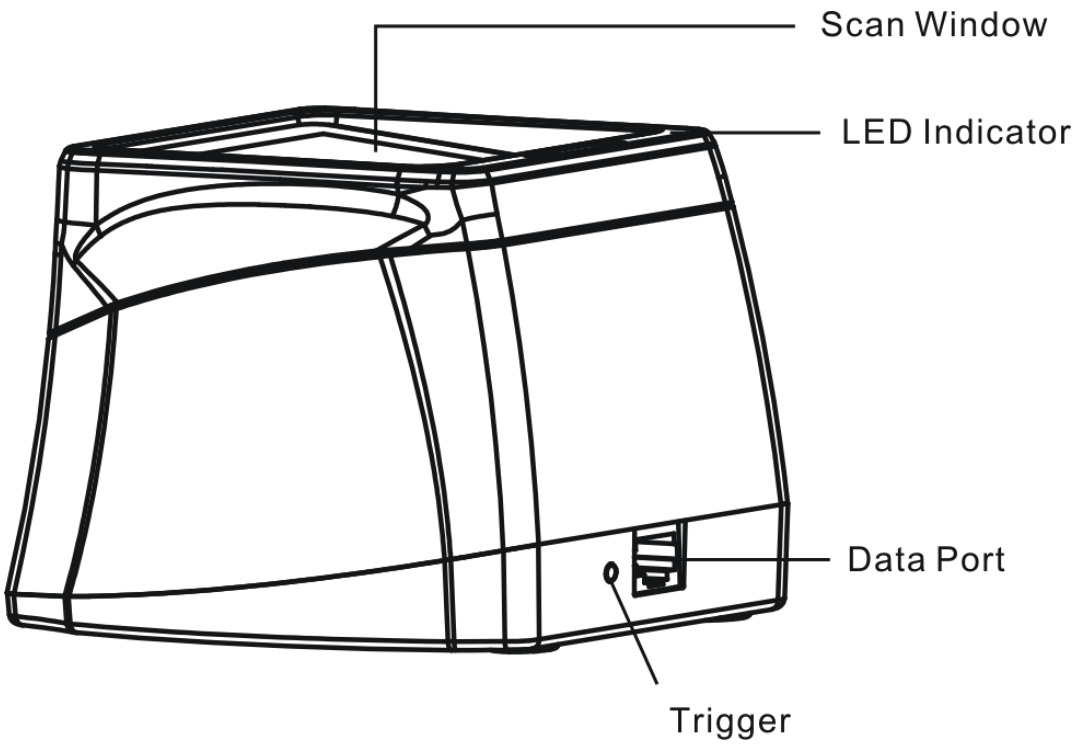
4. Easy to use

Simple configuration by scanning the programming barcodes provided in the user guide.

Chapter 5 Technical Specifications

Processor	IOTC 0370 CHIP
Interface	RS-232 (9.6~115.2Kbps)
	USB 1.1 (HID-KBW, HID-POS)
Image Sensor	640×480 CMOS
Symbologies	2D: PDF417, Data Matrix, QR Code 1D: EAN-13, EAN-8, UPC-A, UPC-E, ISSN, ISBN, Codabar, Code 128, Code 93, ITF-6, ITF-14, Interleaved 2 of 5, Industrial 2 of 5, Standard 2 of 5, Matrix 2 of 5, GS1 Databar (RSS-Expand, RSS-Limited, RSS-14), Code 39, Code 11, MSI-Plessey, Plessey
Scan Mode	Sense mode, Continuous mode
Resolution	10 mil
Light Source	White LED
Scan Window	52mm*69mm
PCS	≥30%
FOV	Diagonal: 68°, Horizontal: 42°, Vertical: 54°
Ambient Light	0 ~ 100,000 LUX
Power Consumption	1W (max.)
Power Adapter	Output: DC5V, 0.5A, Input: AC100~240V, 50~60Hz
Notification	Beep and LED indicator
Dimensions	127.3mm(L) X 111.5mm (W) X 94mm(H)
Weight	300g
Operating Temperature	-10℃ to + 50℃
Storage Temperature	-20℃ to + 60℃
Humidity	5% - 95%（non-condensing）
Certification	FCC Part15 Class B, CE EMC Class B

Chapter 6 FR20 Scanner



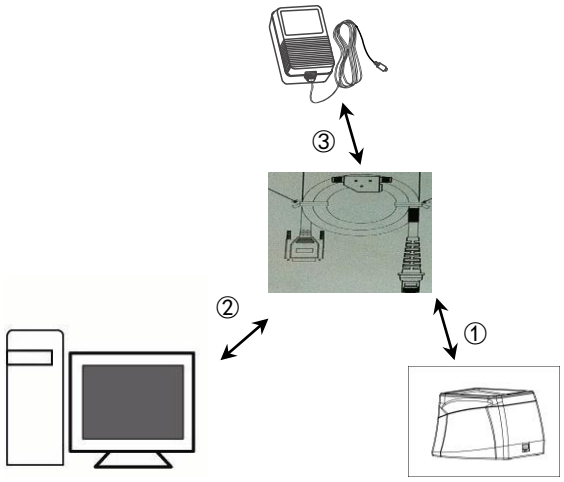
Chapter 7 Wiring

1. If your scanner is equipped with an RS-232 interface:

1) Plug the supplied cable's RJ45 connector into the data port on the scanner.

2) Plug the cable's RS-232 connector into the RS-232 port on PC.

3) Plug the power adapter into the cable's power jack.

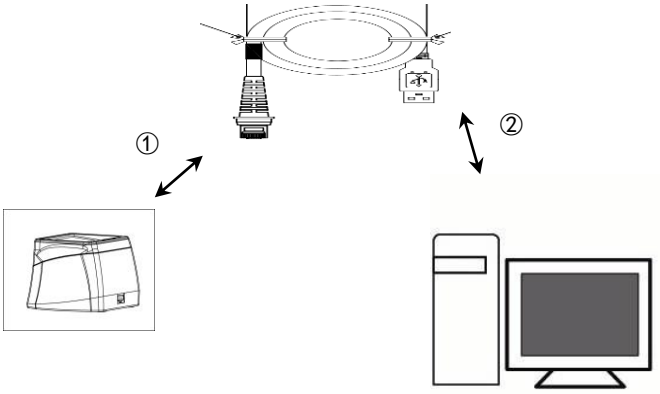


4) Connect the power adapter to a power outlet. After 0.5s the scanner will be powered on (indicator: beep and red LED) and then automatically enter standby mode.

2. If your scanner is equipped with a USB interface:

1) Plug the supplied cable's RJ45 connector into the data port on the scanner.

2) Plug the cable's USB connector into the USB port on PC.



3) After 0.5s the scanner will be powered on (indicator: beep and red LED) and then automatically enter standby mode.

Chapter 8 Scanning Instructions

Reading a Digital Barcode off Mobile Phone

1. Place the mobile phone screen as close as possible to the scan window and present the barcode to the center of the window.

2. For a successful read, the scanner will beep with its LED turning from red to green. After sending the data to the host, it will enter standby mode.

Reading a Barcode Printed on Paper

1. Place the paper as close as possible to the scan window and present the barcode to the center of the window.

2. For a successful read, the scanner will beep with its LED turning from red to green. After sending the data to the host, it will enter standby mode.

Chapter 9 System Settings

Illumination

Always ON: Illumination LED keeps ON after the scanner is powered on.

Normal: Illumination LED is turned on when the scanner is reading barcode.

OFF: Illumination LED is OFF all the time.

**** Normal**

OFF

Always ON

Notification

Mute Mode

Scanning the **Enable Mute Mode**/**Disable Mute Mode** can turn off/on all notification beeps.

W400000

Enable Mute Mode

W400040

**** Disable Mute Mode**

Good Read Beep

W040E04

**** Good Read Beep On**

W040E00

Good Read Beep Off

Good Read Beep Frequency/Duration

WFF09DA

Low Frequency

WFF094B

**** Medium Frequency**

WFF0925

High Frequency

WFF0A1F

40ms

WFF0A3E

**** 80ms**

WFF0A5D

120ms

Scan Mode

Sense Mode

The scanner activates a decode session every time when it detects a change in ambient illumination and meets the requirement of the image stabilization timeout. Decode session continues until barcode is decoded or the decode session timeout expires.

Moreover, a trigger pull can also activate a decode session.

**** Sense Mode**

Decode Session Timeout: This parameter sets the maximum time decode session continues during a scan attempt. It is programmable in 0.1s increments from 0.1s to 25.5s. If it is set to 0, the decode session timeout is infinite.

Image Stabilization Timeout: The scanner waits for the image stabilization timeout to expire before activating a decode session every time it detects a change in ambient illumination. This parameter is programmable in 0.1s increments from 0.0s to 25.5s.

Decode Session Timeout

Image Stabilization Timeout

Example: Set the Image Stabilization Timeout to 5s

1. Scan the **Image Stabilization Timeout** barcode.
2. Scan the numeric barcodes “5” and “0”.
3. Scan the **Save** barcode.

Sensitivity: This parameter specifies the degree of acuteness of the scanner's response to changes in ambient illumination. The higher the sensitivity, the lower requirement in illumination change to trigger the scanner. You can select an appropriate degree of sensitivity that fits the ambient environment.

WFF0305

High Sensitivity

WFF0310

**** Medium Sensitivity**

WFF0330

Low Sensitivity

M00031A

Custom Sensitivity

Sensitivity levels range from 0 to 255. The smaller the number, the higher the sensitivity.

Example: Set the sensitivity level to 10

1. Scan the **Custom Sensitivity** barcode.
2. Scan the numeric barcodes "1" and "0".
3. Scan the **Save** barcode.

Continuous Mode

When enabled, the scanner activates decode sessions at user-specified intervals, i.e. the timeout between decodes. Each decode session lasts until barcode is decoded or the decode session timeout expires. To suspend/resume the operation, simply press the trigger.

W030002

Continuous Mode

Decode Session Timeout: This parameter sets the maximum time decode session continues during a scan attempt. It is programmable in 0.1s increments from 0.1s to 25.5s. If it is set to 0, the decode session timeout is infinite.

M00031D

Decode Session Timeout

Example: Set the Decode Session Timeout to 5s

1. Scan the **Decode Session Timeout** barcode.
2. Scan the numeric barcodes “5” and “0”.
3. Scan the **Save** barcode.

Timeout between Decodes: When a decode session ends, next session will not happen until the timeout between decodes expires. It is programmable in 0.1s increments from 0s to 25.5s.

Timeout between Decodes

Example: Set the Timeout between Decodes to 5s

1. Scan the **Timeout between Decodes** barcode.
2. Scan the numeric barcodes “5” and “0”.
3. Scan the **Save** barcode.

Factory Defaults

Scanning the following barcode can restore the scanner to the factory defaults.

You may need to reset your scanner when:

1. scanner is not properly configured so that it fails to decode barcodes;

2. you forget previous configuration and want to avoid its impact;

3. functions that are rarely used have been enabled for the time being.

Restore All Factory Defaults

Digit Barcodes

After scanning numeric barcode(s), you need to scan the **Save** barcode to save the data.

0

1

2

3

4

5

6

7

8

9

A

B

C

D

E

F

Save/Cancel Barcodes

After reading numeric barcode(s), you need to scan the **Save** barcode to save the data. If you scan the wrong digit(s), you can either scan the **Cancel the Last Digit** barcode and then the correct digit, or scan the **Cancel All Digits** barcode and then the digits you want.

For instance, after reading the **Decode Session Timeout** barcode and numeric barcodes “1”, “2” and “3”, you scan:

Cancel the Last Digit: The last digit “3” will be removed.

Cancel All Digits: All digits “123” will be removed.

Save

Cancel the Last Digit

Cancel All Digits

Chapter 10 RS-232 Interface

When the scanner is connected to a host device through its RS-232 interface, serial communication is enabled by default. However, to ensure smooth communication and accuracy of data, you need to set the scanner's communication parameters (including baud rate) to match the host's settings. The default settings of the scanner are 9600bps, no parity check, 8 data bits and 1 stop bit.

WFFD9D3

**** Baud Rate 9600**

WFFD9D0

Baud Rate 1200

WFFD9D1

Baud Rate 2400

WFFD9D2

Baud Rate 4800

WFFD9D4

Baud Rate 14400

WFFD9D5

Baud Rate 19200

WFFD9D6

Baud Rate 38400

WFFD9D7

Baud Rate 57600

WFFD9D8

Baud Rate 115200

Chapter 11 USB Interface

When the scanner is connected to a host device through its USB interface, **USB HID-KBW** is enabled by default. You may switch to **HID-POS** or **USB COM Port Emulation** by scanning the appropriate barcode below.

HID-POS

HID-POS

USB COM Port Emulation

USB COM Port Emulation

USB HID-KBW

**** USB HID-KBW**

Three methods of input are provided for USB HID-KBW: Standard Keyboard, Function Key Mapping, Emulate ALT+Keypad.

Standard Keyboard

**** Standard Keyboard**

Function Key Mapping

When **Function Key Mapping** is enabled, function character (0x00 - 0x1F) are sent as ASCII sequences over the numeric keypad.

1. CTRL Make
2. Press function key (Refer to the **ASCII Function Key Mapping Table** on the following page)
3. CTRL Break

Function Key Mapping

ASCII Function Key Mapping Table

ASCII(HEX)	Function key	ASCII(HEX)	Function key
00	2	10	P
01	A	11	Q
02	B	12	R
03	C	13	S
04	D	14	T
05	E	15	U
06	F	16	V
07	G	17	W
08	H	18	X
09	I	19	Y
0A	J	1A	Z
0B	K	1B	[
0C	L	1C	\
0D	M	1D	]
0E	N	1E	6
0F	O	1F	.

Emulate ALT+Keypad

When **Emulate ALT+Keypad** is enabled, any ASCII character (0x00 - 0xFF) is sent over the numeric keypad no matter which keyboard type is selected.

1. ALT Make
2. Enter the number corresponding to the ASCII character on the keypad.
3. ALT Break

Emulate ALT+Keypad

USB Country Keyboard Types

**** 1 - U.S.**

2 - Belgium

3 - Brazil

4 - Canada

5 - Czech

6 - Denmark

7 - Finland

8 - France

9 - Austria

10 - Greece

11 - Hungary

12 - Israel

13 - Italy

14 - Latin America

15 - Netherland

16 - Norway

17 - Poland

18 - Portugal

19 - Romania

20 - Russia

21 - Slovakia

22 - Spain

23 - Sweden

24 - Switzerland

25 - Turkey1

26 - Turkey 2

27 - UK

28 - Japan

Chapter 12 Symbologies

Introduction

Every symbology (barcode type) has its own unique attributes. This chapter provides programming barcodes for configuring the scanner so that it can identify various barcode symbologies. It is recommended to disable those that are rarely used to increase the efficiency of the scanner.

Global Settings

Disable All Symbologies

If all symbologies are disabled, the scanner can only identify programming barcodes.

Disable All Symbologies

Enable All Symbologies

Enable All Symbologies

Enable 1D Symbologies

Enable 1D Symbologies

Disable 1D Symbologies

Disable 1D Symbologies

Enable 2D Symbologies

Enable 2D Symbologies

Disable 2D Symbologies

Disable 2D Symbologies

Code 128

Restore Factory Defaults

Restore the Factory Defaults of Code 128

Enable/Disable Code 128

**** Enable Code 128**

Disable Code 128

UCC/EAN-128 (GS1-128)

Restore Factory Defaults

Restore the Factory Defaults of UCC/EAN-128

Enable/Disable UCC/EAN-128

**** Enable UCC/EAN-128**

Disable UCC/EAN-128

AIM 128

Restore Factory Defaults

Restore the Factory Defaults of AIM 128

Enable/Disable AIM 128

**** Enable AIM 128**

Disable AIM 128

EAN-8

Restore Factory Defaults

Restore the Factory Defaults of EAN-8

Enable/Disable EAN-8

**** Enable EAN-8**

Disable EAN-8

Transmit Check Digit

EAN-8 is 8 digits in length with the last one as its check digit used to verify the integrity of the data.

**** Transmit Check Digit**

Do Not Transmit Check Digit

2-Digit Add-On Code

An EAN-8 barcode can be augmented with a two-digit add-on code to form a new one. In the examples below, the part surrounded by blue dotted line is an EAN-8 barcode while the part circled by red dotted line is add-on code.

W101310

Enable 2-Digit Add-On Code

W101300

**** Disable 2-Digit Add-On Code**

5-Digit Add-On Code

An EAN-8 barcode can be augmented with a five-digit add-on code to form a new one. In the examples below, the part surrounded by blue dotted line is an EAN-8 barcode while the part circled by red dotted line is add-on code.

W201320

Enable 5-Digit Add-On Code

W201300

**** Disable 5-Digit Add-On Code**

EAN-8 Extension

Disable EAN-8 Zero Extend: Transmit EAN-8 barcodes as is.

Enable EAN-8 Zero Extend: Add five leading zeros to decoded EAN-8 barcodes to extend to13 digits.

**** Disable EAN-8 Zero Extend**

Enable EAN-8 Zero Extend

EAN-13

Restore Factory Defaults

Restore the Factory Defaults of EAN-13

Enable/Disable EAN-13

**** Enable EAN-13**

Disable EAN-13

Transmit Check Digit

EAN-13 is 13 digits in length with the last one as its check digit used to verify the integrity of the data.

**** Transmit Check Digit**

Do Not Transmit Check Digit

2-Digit Add-On Code

An EAN-13 barcode can be augmented with a two-digit add-on code to form a new one. In the examples below, the part surrounded by blue dotted line is an EAN-8 barcode while the part circled by red dotted line is add-on code.

W101110

Enable 2-Digit Add-On Code

W101100

**** Disable 2-Digit Add-On Code**

5-Digit Add-On Code

An EAN-13 barcode can be augmented with a five-digit add-on code to form a new one. In the examples below, the part surrounded by blue dotted line is an EAN-8 barcode while the part circled by red dotted line is add-on code.

W201120

Enable 5-Digit Add-On Code

W201100

**** Disable 5-Digit Add-On Code**

ISSN

Restore Factory Defaults

Restore the Factory Defaults of ISSN

Enable/Disable ISSN

Enable ISSN

**** Disable ISSN**

ISBN

Restore Factory Defaults

Restore the Factory Defaults of ISBN

Enable/Disable ISBN

**** Enable ISBN**

Disable ISBN

Set ISBN Format

**** ISBN-13**

ISBN-10

UPC-E

Restore Factory Defaults

Restore the Factory Defaults of UPC-E

Enable/Disable UPC-E

**** Enable UPC-E**

Disable UPC-E

Transmit Check Digit

UPC-E is 8 digits in length with the last one as its check digit used to verify the integrity of the data.

**** Transmit Check Digit**

Do Not Transmit Check Digit

2-Digit Add-On Code

A UPC-E barcode can be augmented with a two-digit add-on code to form a new one. In the examples below, the part surrounded by blue dotted line is a UPC-E barcode while the part circled by red dotted line is add-on code.

W201520

Enable 2-Digit Add-On Code

W201500

**** Disable 2-Digit Add-On Code**

5-Digit Add-On Code

A UPC-E barcode can be augmented with a five-digit add-on code to form a new one. In the examples below, the part surrounded by blue dotted line is a UPC-E barcode while the part circled by red dotted line is add-on code.

W401540

Enable 5-Digit Add-On Code

W401500

**** Disable 5-Digit Add-On Code**

Transmit System Character

W081508

Transmit System Character “0”

W081500

**** Do Not Transmit System Character “0”**

UPC-E Extension

Disable UPC-E Extend: Transmit UPC-E barcodes as is.

Enable UPC-E Extend: Extend UPC-E barcodes to make them compatible in length to UPC-A.

W801580

Enable UPC-E Extend

W801500

**** Disable UPC-E Extend**

UPC-A

Restore Factory Defaults

Restore the Factory Defaults of UPC-A

Enable/Disable UPC-A

**** Enable UPC-A**

Disable UPC-A

Transmit Check Digit

UPC-A is 13 digits in length with the last one as its check digit used to verify the integrity of the data.

**** Transmit Check Digit**

Do Not Transmit Check Digit

2-Digit Add-On Code

A UPC-A barcode can be augmented with a two-digit add-on code to form a new one. In the examples below, the part surrounded by blue dotted line is a UPC-E barcode while the part circled by red dotted line is add-on code.

Enable 2-Digit Add-On Code

**** Disable 2-Digit Add-On Code**

5-Digit Add-On Code

A UPC-A barcode can be augmented with a five-digit add-on code to form a new one. In the examples below, the part surrounded by blue dotted line is a UPC-E barcode while the part circled by red dotted line is add-on code.

Enable 5-Digit Add-On Code

**** Disable 5-Digit Add-On Code**

Transmit Preamble Character

Transmit Preamble Character “0”

**** Do Not Transmit Preamble Character “0”**

Interleaved 2 of 5

Restore Factory Defaults

WFFD99A

Restore the Factory Defaults of Interleaved 2 of 5

Enable/Disable Interleaved 2 of 5

W011801

**** Enable Interleaved 2 of 5**

W011800

Disable Interleaved 2 of 5

Check Digit Verification

A check digit is optional for Interleaved 2 o 5 and can be added as the last digit. It is a calculated value used to verify the integrity of the data.

Disable: The scanner transmits Interleaved 2 of 5 barcodes as is.

Do Not Transmit Check Digit after Verification: The scanner checks the integrity of all Interleaved 2 of 5 barcodes to verify that the data complies with the check digit algorithm. Barcodes passing the check will be transmitted except the last digit, whereas those failing it will not be transmitted.

Transmit Check Digit after Verification: The scanner checks the integrity of all Interleaved 2 of 5 barcodes to verify that the data complies with the check digit algorithm. Barcodes passing the check will be transmitted, whereas those failing it will not be transmitted.

W0C1800

**** Disable**

W0C1804

Do Not Transmit Check Digit after Verification

W0C180C

Transmit Check Digit after Verification

ITF-6

Restore Factory Defaults

Restore the Factory Defaults of ITF-6

Enable/Disable ITF-6

**** Disable ITF-6**

Enable ITF-6 But Do Not Transmit Check Digit

Enable ITF-6 and Transmit Check Digit

ITF-14

Restore Factory Defaults

WFFD99C

Restore the Factory Defaults of ITF-14

Enable/Disable ITF-14

W201800

Disable ITF-14

WA01820

Enable ITF-14 But Do Not Transmit Check Digit

WA018A0

**** Enable ITF-14 and Transmit Check Digit**

Matrix 2 of 5 (European Matrix 2 of 5)

Restore Factory Defaults

Restore the Factory Defaults of Matrix 2 of 5

Enable/Disable Matrix 2 of 5

**** Enable Matrix 2 of 5**

Disable Matrix 2 of 5

Check Digit Verification

A check digit is optional for Matrix 2 of 5 and can be added as the last digit. It is a calculated value used to verify the integrity of the data.

Disable: The scanner transmits Matrix 2 of 5 barcodes as is.

Do Not Transmit Check Digit After Verification: The scanner checks the integrity of all Matrix 2 of 5 barcodes to verify that the data complies with the check digit algorithm. Barcodes passing the check will be transmitted except the last digit, whereas those failing it will not be transmitted.

Transmit Check Digit After Verification: The scanner checks the integrity of all Matrix 2 of 5 barcodes to verify that the data complies with the check digit algorithm. Barcodes passing the check will be transmitted, whereas those failing it will not be transmitted.

**** Disable**

Do Not Transmit Check Digit after Verification

Transmit Check Digit after Verification

Industrial 25

Restore Factory Defaults

Restore the Factory Defaults of Industrial 25

Enable/Disable Industrial 25

**** Enable Industrial 25**

Disable Industrial 25

Check Digit Verification

A check digit is optional for Industrial 25 and can be added as the last digit. It is a calculated value used to verify the integrity of the data.

Disable: The scanner transmits Industrial 25 barcodes as is.

Do Not Transmit Check Digit after Verification: The scanner checks the integrity of all Industrial 25 barcodes to verify that the data complies with the check digit algorithm. Barcodes passing the check will be transmitted except the last digit, whereas those failing it will not be transmitted.

Transmit Check Digit after Verification: The scanner checks the integrity of all Industrial 25 barcodes to verify that the data complies with the check digit algorithm. Barcodes passing the check will be transmitted, whereas those failing it will not be transmitted.

W201900

**** Disable**

W601920

Do Not Transmit Check Digit after Verification

W601960

Transmit Check Digit after Verification

Standard 25

Restore Factory Defaults

Restore the Factory Defaults of Standard 25

Enable/Disable Standard 25

**** Enable Standard 25**

Disable Standard 25

Check Digit Verification

A check digit is optional for Standard 25 and can be added as the last digit. It is a calculated value used to verify the integrity of the data.

Disable: The scanner transmits Standard 25 barcodes as is.

Do Not Transmit Check Digit after Verification: The scanner checks the integrity of all Standard 25 barcodes to verify that the data complies with the check digit algorithm. Barcodes passing the check will be transmitted except the last digit, whereas those failing it will not be transmitted.

Transmit Check Digit after Verification: The scanner checks the integrity of all Standard 25 barcodes to verify that the data complies with the check digit algorithm. Barcodes passing the check will be transmitted, whereas those failing it will not be transmitted.

W401A00

**** Disable**

WC01A40

Do Not Transmit Check Digit after Verification

WC01AC0

Transmit Check Digit after Verification

Code 39

Restore Factory Defaults

Restore the Factory Defaults of Code 39

Enable/Disable Code 39

**** Enable Code 39**

Disable Code 39

Transmit Start/Stop Character

Code 39 uses an asterisk (*) for both the start and the stop characters. You can choose whether or not to transmit the start/stop characters by scanning the appropriate barcode below.

Transmit Start/Stop Character

**** Do Not Transmit Start/Stop Character**

Enable/Disable Code 39 Full ASCII

The scanner can be configured to identify all ASCII characters by scanning the appropriate barcode below.

**** Disable Code 39 Full ASCII**

Enable Code 39 Full ASCII

Check Digit Verification

A check digit is optional for Code 39 and can be added as the last digit. It is a calculated value used to verify the integrity of the data.

Disable: The scanner transmits Code 39 barcodes as is.

Do Not Transmit Check Digit after Verification: The scanner checks the integrity of all Code 39 barcodes to verify that the data complies with the check digit algorithm. Barcodes passing the check will be transmitted except the last digit, whereas those failing it will not be transmitted.

Transmit Check Digit after Verification: The scanner checks the integrity of all Code 39 barcodes to verify that the data complies with the check digit algorithm. Barcodes passing the check will be transmitted, whereas those failing it will not be transmitted.

**** Disable**

Do Not Transmit Check Digit after Verification

Transmit Check Digit after Verification

Codabar

Restore Factory Defaults

Restore the Factory Defaults of Codabar

Enable/Disable Codabar

**** Enable Codabar**

Disable Codabar

Check Digit Verification

Check digits are optional for Codabar and can be added as the last two digits, which are calculated values used to verify the integrity of the data.

Disable: The scanner transmits Codabar barcodes as is.

Do Not Transmit Check Digit after Verification: The scanner checks the integrity of all Codabar barcodes to verify that the data complies with the check digit algorithm. Barcodes passing the checks will be transmitted except the last two digits, whereas those failing them will not be transmitted.

Transmit Check Digit after Verification: The scanner checks the integrity of all Codabar barcodes to verify that the data complies with the check digit algorithm. Barcodes passing the checks will be transmitted, whereas those failing them will not be transmitted.

**** Disable**

Do Not Transmit Check Digit after Verification

Transmit Check Digit after Verification

Transmit Start/Stop Character

W021E00

Do Not Transmit Start/Stop Character

W021E02

**** Transmit Start/Stop Character**

W0C1E00

**** ABCD/ABCD as the Start/Stop Character**

W0C1E04

ABCD/TN*E as the Start/Stop Character

W0C1E08

abcd/abcd as the Start/Stop Character

W0C1E0C

abcd/tn*e as the Start/Stop Character

Code 93

Restore Factory Defaults

Restore the Factory Defaults of Code 93

Enable/Disable Code 93

**** Enable Code 93**

Disable Code 93

Check Digit Verification

Check digits are optional for Code 93 and can be added as the last two digits, which are calculated values used to verify the integrity of the data.

Disable: The scanner transmits Code 93 barcodes as is.

Do Not Transmit Check Digit after Verification: The scanner checks the integrity of all Code 93 barcodes to verify that the data complies with the check digit algorithm. Barcodes passing the checks will be transmitted except the last two digits, whereas those failing them will not be transmitted.

Transmit Check Digit after Verification: The scanner checks the integrity of all Code 93 barcodes to verify that the data complies with the check digit algorithm. Barcodes passing the checks will be transmitted, whereas those failing them will not be transmitted.

Disable

**** Do Not Transmit Check Digit after Verification**

Transmit Check Digit after Verification

Code 11

Restore Factory Defaults

Restore the Factory Defaults of Code 11

Enable/Disable Code 11

**** Enable Code 11**

Disable Code 11

Check Digit Verification

Check digits are optional for Code 11 and can be added as the last one or two digits, which are calculated values used to verify the integrity of the data.

If the **Disable** option is enabled, the scanner transmits Code 11 barcodes as is.

Disable

**** One Check Digit, MOD11**

Two Check Digits, MOD11/MOD11

Two Check Digits, MOD11/MOD9

One Check Digit, MOD11 (Len <= 11)
Two Check Digits, MOD11/MOD11 (Len > 11)

One Check Digit, MOD11 (Len <= 11)
Two Check Digits, MOD11/MOD9 (Len > 11)

Do Not Transmit Check Digit

**** Transmit Check Digit**

Plessey

Restore Factory Defaults

Restore the Factory Defaults of Plessey

Enable/Disable Plessey

**** Enable Plessey**

Disable Plessey

Check Digit Verification

Check digits are optional for Plessey and can be added as the last one or two digits, which are calculated values used to verify the integrity of the data.

Disable: The scanner transmits Plessey barcodes as is.

Do Not Transmit Check Digit after Verification: The scanner checks the integrity of all Plessey barcodes to verify that the data complies with the check digit algorithm. Barcodes passing the checks will be transmitted except the last two digits, whereas those failing them will not be transmitted.

Transmit Check Digit after Verification: The scanner checks the integrity of all Plessey barcodes to verify that the data complies with the check digit algorithm. Barcodes passing the checks will be transmitted, whereas those failing them will not be transmitted.

Disable

**** Do Not Transmit Check Digit after Verification**

Transmit Check Digit after Verification

MSI-Plessey

Restore Factory Defaults

WFFD9A7

Restore the Factory Defaults of MSI-Plessey

Enable/Disable MSI-Plessey

W081F08

**** Enable MSI-Plessey**

W081F00

Disable MSI-Plessey

Check Digit Verification

Check digits are optional for MSI-Plessey and can be added as the last one or two digits, which are calculated values used to verify the integrity of the data.

If the **Disable** option is enabled, the scanner transmits MSI-Plessey barcodes as is.

Disable

**** One Check Digit, MOD10**

Two Check Digits, MOD10/MOD10

Two Check Digits, MOD10/MOD11

Do Not Transmit Check Digit

**** Transmit Check Digit**

RSS-14

Restore Factory Defaults

WFFD9A8

Restore the Factory Defaults of RSS-14

Enable/Disable RSS-14

W011B01

**** Enable RSS-14**

W011B00

Disable RSS-14

Transmit Application Identifier “01”

W041B04

**** Transmit Application Identifier “01”**

W041B00

Do Not Transmit Application Identifier “01”

RSS-Limited

Restore Factory Defaults

WFFD9A9

Restore the Factory Defaults of RSS-Limited

Enable/Disable RSS- Limited

W081B08

**** Enable RSS-Limited**

W081B00

Disable RSS-Limited

Transmit Application Identifier “01”

W201B20

**** Transmit Application Identifier “01”**

W201B00

Do Not Transmit Application Identifier “01”

RSS-Expand

Restore Factory Defaults

WFFD9AA

Restore the Factory Defaults of RSS-Expand

Enable/Disable RSS-Expand

W401B40

**** Enable RSS-Expand**

W401B00

Disable RSS-Expand

PDF417

Restore Factory Defaults

Restore the Factory Defaults of PDF417

Enable/Disable PDF417

**** Enable PDF417**

Disable PDF417

Macro PDF417

Enable Macro PDF417

**** Disable Macro PDF417**

Data Matrix

Restore Factory Defaults

Restore the Factory Defaults of Data Matrix

Enable/Disable Data Matrix

**** Enable Data Matrix**

Disable Data Matrix

Enable/Disable Mirrored DM

Enable Mirrored DM

**** Disable Mirrored DM**

Rectangular Barcodes

Data Matrix has two formats:

Square barcodes having the same amount of modules in length and width: 10*10, 12*12.... 144*144.

Rectangular barcodes having different amounts of models in length and width: 6*16, 6*14... 14*22.

W034B03

**** Decode Rectangular Barcodes**

W034B00

Do Not Decode Rectangular Barcodes

QR Code

Restore Factory Defaults

Restore the Factory Defaults of QR Code

Enable/Disable QR Code

**** Enable QR Code**

Disable QR Code

Micro QR

This parameter is valid only when QR Code is enabled.

**** Enable Micro QR**

Disable Micro QR

Chapter 13 Data Formatting

AIM ID Prefix

AIM (Automatic Identification Manufacturers) IDs define symbology identifiers and data carrier identifiers. For the details, see the **AIM ID Table**. If AIM ID prefix is enabled, the engine will add the symbology identifier before the scanned data after decoding.

**** Disable AIM ID Prefix**

Enable AIM ID Prefix

AIM ID Table

Symbology	AIM ID	Remark
Code 128	]C0	Standard Code 128
UCC/EAN 128 (GS1-128)	]C1	FNC1 is the character right after the start character
AIM 128	]C2	FNC1 is the 2nd character after the start character
EAN-8	]E4	Standard EAN-8
	]E4….]E1…	EAN-8 + 2-Digit Add-On Code
	]E4….]E2…	EAN-8 + 5-Digit Add-On Code
EAN-13	]E0	Standard EAN-13
	]E3	EAN-13 + 2/5-Digit Add-On Code
ISSN	]X5	
ISBN	]X4	
UPC-E	]E0	Standard UPC-E
	]E3	UPC-E + 2/5-Digit Add-On Code
UPC-A	]E0	Standard UPC-A
	]E3	UPC-A + 2/5-Digit Add-On Code
Interleaved 2 of 5	]I0	No check digit verification
	]I1	Transmit check digit after verification
	]I3	Do not transmit check digit after verification
ITF-6	]I1	Transmit check digit
	]I3	Do not transmit check digit
ITF-14	]I1	Transmit check digit
	]I3	Do not transmit check digit
Matrix 2 of 5	]X1	No check digit verification
	]X2	Transmit check digit after verification
	]X3	Do not transmit check digit after verification
Industrial 25	]S0	Not specified
Standard 25	]R0	No check digit verification
	]R8	One check digit, MOD 7; do not transmit check digit
	]R9	One check digit, MOD 7; transmit check digit

Symbology	AIM ID	Remark
Code 39	]A0	Transmit barcodes as is; Full ASCII disabled; no check digit verification
	]A1	One check digit, MOD 43; transmit check digit
	]A3	One check digit, MOD 43; do not transmit check digit
	]A4	Full ASCII enabled; no check digit verification
	]A5	Full ASCII enabled; MOD43; transmit check digit
	]A7	Full ASCII enabled; MOD43; do not transmit check digit
Codabar	]F0	Standard Codabar
	]F1	ABC Codabar
	]F2	Transmit check digit after verification
	]F4	Do not transmit check digit after verification
Code 93	]G0	Not specified
Code 11	]H0	One check digit, MOD11; transmit check digit
	]H1	Two check digits, MOD11/MOD11; transmit check digit
	]H3	Do not transmit check digit after verification
	]H8	Two check digits, MOD11/MOD9; transmit check digit
	]H9	No check digit verification
Plessey	]P0	Not specified
MSI-Plessey	]M0	One check digit, MOD10; transmit check digit
	]M1	One check digit, MOD10; do not transmit check digit
	]M7	Two check digits, MOD10 /MOD11; do not transmit check digit
	]M8	Two check digits, MOD10 /MOD11; transmit check digit
	]M9	No check digit verification
RSS-14 RSS-Limited RSS-Expand	]e0	Standard
	]e1	User-defined
	]e2	User-defined
	]e3	User-defined
PDF417	]L0	Comply with 1994 PDF417 specifications
Data Matrix	]d0	ECC 000 - 140
	]d1	ECC 200
	]d2	ECC 200; FNC1 is the 1st or 5th character after the start character

Symbology	AIM ID	Remark
	]d3	ECC 200; FNC1 is the 2nd or 6th character after the start character
	]d4	ECC 200, ECI protocol supported
	]d5	ECC 200; FNC1 is the 1st or 5th character after the start character; ECI supported
	]d6	ECC 200; FNC1 is the 2nd or 6th character after the start character; ECI supported
QR Code	]Q0	QR1 (comply with AIM ISS 97-001 specifications)
	]Q1	QR2 (2005 symbol), ECI protocol not supported
	]Q2	QR2 (2005 symbol), ECI protocol supported
	]Q3	QR2 (2005 symbol), ECI protocol not supported; FNC1 is the character right after the start character
	]Q4	QR2 (2005 symbol), ECI protocol supported; FNC1 is the character right after the start character
	]Q5	QR2 (2005 symbol), ECI protocol not supported; FNC1 is the 2nd character right after the start character
	]Q6	QR2 (2005 symbol), ECI protocol supported; FNC1 is the 2nd character right after the start character

CODE ID Prefix

Code ID can also be used to identify barcode type. For the details, see the **CODE ID Table**.

W800200

**** Disable CODE ID Prefix**

W800280

Enable CODE ID Prefix

You can choose to transmit original CODE ID or visible CODE ID by scanning the appropriate barcode below.

W018A00

**** Original CODE ID**

W018A01

Visible CODE ID

CODE ID Table

Symbology	Original Code ID	Visible Code ID
Code 128 FNC3	0x01	A(0x41)
Code 128	0x02	B(0x42)
UCC/EAN 128	0x03	C(0x43)
EAN-8	0x04	D(0x44)
EAN-13	0x05	E(0x45)
UPC-E	0x06	F(0x46)
UPC-A	0x07	G(0x47)
Interleaved 2 of 5	0x08	H(0x48)
ITF-14	0x09	I(0x49)
ITF-6	0x0A	J(0x4A)
Code 39	0x0D	M(0x4D)
Codabar	0x0F	O(0x4F)
Standard 25	0x10	P(0x50)
Code 93	0x11	Q(0x51)
AIM 128	0x15	U(0x55)
MSI-Plessey	0x16	V(0x56)
ISBN	0x17	W(0x57)
Industrial 25	0x18	X(0x58)
Matrix 2 of 5	0x19	Y(0x59)
RSS-14	0x1A	Z(0x5A)
RSS-Limited	0x1B	[(0x5B)
RSS-Expand	0x1C	\(0x5C)
Code 11	0x1D	](0x5D)
Plessey	0x1E	^(0x5E)
ISSN	0x1F	_(0x5F)
PDF417	0x20	`(0x60)
QR Code	0x21	a(0x61)
Data Matrix	0x23	c(0x63)

Terminating Character Suffix

A terminating character such as carriage return (CR) or carriage return/line feed pair (CRLF) or horizontal tab (TAB) can be used to mark the end of data.

W616000

Disable Terminating Character Suffix

W616001

Append CR

W616021

**** Append CRLF**

W616041

Append TAB

Chapter 14 Troubleshooting

Problem	Solution
Does not respond to input.	Disconnect the power adapter and then reconnect it.
Scanned data is not displayed on the host.	Ensure the scanner's communication parameters (such as baud rate, interface) match the host's settings.
Cannot read barcodes.	1. Follow the scanning instructions in this manual to scan barcode. 2. Ensure the barcode type is enabled. 3. Ensure the barcode is not defaced. Wrinkled, soiled or torn barcodes might be unreadable.

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